

**DISTRICT ADVISORY BOARD AGENDA**  
**DISTRICT I**  
**February 2, 2004**  
**REVISED**  
**7:00 p.m.**

Atwater Neighborhood City Hall, 2755 E. 19<sup>th</sup>

**ORDER OF BUSINESS**

Call to Order  
Approval of Minutes for January 5, 2004  
Approval of Agenda for February 2, 2004.

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**Public Agenda**

Board will hear public issues from individual citizens regarding City issues not scheduled on the agenda.

**1. Scheduled items**

**No items submitted**

**2. Off-agenda items**

**No items submitted**

**Staff Reports**

**3. Police Report**

**Police Officers** will provide trend reports for their police beat and other pertinent information.

**Recommended Action: Receive and file.**

**Housing Agenda**

**4. Low Income Housing Tax Credits**

**Mark Stanberry, Housing**, will be present to explain the request for Resolution of Support for Application for Low-Income Housing Tax Credits (Prairie Villa II, Investment Resources Corporation).

**Recommended Action: It is recommended that the DAB approve the request.**

**Health Department**

**5. Revision of Animal Maintenance Code**

**Roger Smith, Environmental Health**, will be present to review the revision of the Animal Maintenance Code and receive feedback.

**Recommended Action: Provide input and recommend approval.**

**6. 21<sup>st</sup> and Edgemoor/Malcolm Intersection Traffic Study**

**Scott Logan, Traffic Engineering**, will present the findings of the traffic study conducted at 21<sup>st</sup> and Edgemoor/Malcolm intersection.

**Recommended Action: Approval and file the 21<sup>st</sup>/Edgemoor Traffic Study.**

**Unfinished Business**

**No items submitted**

**New Business**

**No items submitted**

**Board Agenda**

**7. Updates, Issues, and Reports**

Opportunity is provided for the Council Member and the District Advisory Board Members to report any activities, events, or concerns in the neighborhoods and/or Council District.

**Recommended Action: Take appropriate action.**

**General Comments/Announcements**

- District I Coalition Meeting will be March 6, 2004, Cisro's Restaurant.
- Next meeting of DAB I will be March 1, 2004.

**Adjourn**

**City of Wichita  
District #1 Advisory Board Meeting  
DATE February 4, 2004**

**TO:** City Council Member Brewer  
District I Advisory Board Members

**SUBJECT:** 21<sup>st</sup>/Edgemoor Traffic Study

**INITIATED BY:** Scott Logan, City Traffic Engineer

**AGENDA:** February 4, 2004

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**Recommendations:** Approval and File the 21<sup>st</sup>/Edgemoor Traffic Study

**Background:** A request was received from Lucy Adger, 5803 Callen Street, to evaluate the need for a traffic signal at the 21st/Edgemoor/Malcolm Street intersection to improve traffic conditions. Ms. Adger was concerned about the number of recent accidents at this intersection and requested that staff evaluate the need for immediate improvements. To address Ms. Adger's concerns, staff has evaluated the existing conditions at the 21st/Edgemoor/Malcolm intersection to determine the need for traffic signals and/or other improvements. Currently, there is a two-way stop control at the intersection with signs placed for motorists stopping Edgemoor and Malcolm approaches to allow a free flow along 21st Street.

**Analysis:** To address the need for improvements at the 21st Street/Edgemoor/Malcolm intersection, staff has evaluated traffic conditions and warrants for street and traffic control improvements. The conditions that were evaluated included the accident experience, traffic volumes, sight distance, intersection geometric designs, and other conditions that impact traffic safety and efficiency. According to this evaluation, there have been three reported accidents in the past eighteen months (Jan.2002 - August 2003) at this 21st/Edgemoor/Malcolm intersection. With this accident experience, the intersection would be considered as having a relatively fair accident experience in comparison to similar arterial street intersections.

**The recent traffic counts show that volumes on 21st Street are reaching it's four-lane design capacity.** These counts show that volumes are increasing on 21st Street at the Edgemoor/Malcolm intersection. Counts show an approximate 18% increase, or 4,000 vpd, on 21st Street since June, 2000 when traffic counts were 21,600 vpd . This increase in traffic flow may be contributed by a combination of traffic corridor improvements and new development within the general area. The recent 21st corridor improvements that have improved capacity and operations near the area include the modifications to the I-135/21st Street interchange and the widening of 21st Street between Oliver and Hillside.

**After evaluating these traffic conditions, staff does not believe that traffic signals should be installed at the 21st/Edgemoor/Malcolm intersection.** This is primarily because the existing conditions at the intersection do not meet the traffic signal warrants based on traffic volumes and accidents. Due to this situation, staff believes that the placement of traffic signals would probably detrimentally impact conditions along 21st Street. With the signalized operation on 21st Street, there would be greater delays and an increase in the number of stops for motorists on 21st Street, and probably would result in a greater number of rear-end type accidents. It may also detrimentally impact conditions on Edgemoor and Malcolm since it would probably encourage more traffic along these local/collector streets. With this likelihood, there would be a

potential for higher speeds and accidents at the intersections along both streets.

**Staff does believe that the planned 21st Street lane-widening project would significantly improve conditions at this intersection.** This 21st Street lane-widening alternative is programmed in the City's Capital Improvement Plan for construction in 2006. This lane-widening improvement creates a center turning lane which provides a refuge area for motorists turning onto and from Edgemoor and Malcolm at the 21st Street intersection. This measure would also be effective in mitigating the traffic flow and safety problems caused on 21st Street when motorists are stopped to turn into the intersection approaches. Currently, this condition has resulted in some accidents in the past three years involving east and westbound left-turning vehicles. According to industry studies, this improvement is expected to reduce the number of rear-end collisions by 80%, and the number of left-turning accidents by 45%.

**Financial Considerations:** No cost

**Legal Considerations:** None

**Recommendation/Actions:** "It is recommended that the District Advisory Board approve and file the 21<sup>st</sup>/Edgemoor Traffic Study Report.

(Please attach additional information including maps, notification, staff report, etc.)

# **Staff Report**

## **21st/Edgemoor/Malcolm Traffic Study**

A request was received from Lucy Adger, 5803 Callen Street, to evaluate the need for a traffic signal at the 21st/Edgemoor/Malcolm Street intersection to improve traffic conditions. Ms. Adger was concerned about the number of recent accidents at this intersection and requested that staff evaluate the need for immediate improvements. Currently, there is a two-way stop control at the intersection with signs placed for motorists stopping Edgemoor and Malcolm approaches to allow a free flow along 21st Street.

To address Ms. Adger's concerns, staff has evaluated the existing conditions at the 21st/Edgemoor/Malcolm intersection to determine the need for traffic signals and/or other improvements. The following information identifies and discusses the existing traffic conditions, potential corrective measures, and staff recommendations.



**21st/Edgemoor/Malcolm intersection**

## 21st/Edgemoor/Malcolm Traffic Conditions

This section discusses the current traffic conditions along 21st Street, Edgemoor, and Malcolm that impact traffic safety and efficiency. These conditions include the current traffic accident experience and approach volumes that may indicate a need for intersection improvements. Other conditions affecting traffic movements are also discussed including sight distance at intersection approaches, traffic speeds, and the intersection geometrics at the 21st Street/Edgemoor/Malcolm intersection.

### 21st /Edgemoor(N.Approach)/Malcolm Accident Conditions

Staff has reviewed the traffic accident history at the 21st/Edgemoor (N.approach)/Malcolm intersection to determine if traffic conditions were causing a higher number of accidents. Typically, this past accident history provides good information concerning contributing factors in collisions. A high number of right-angle and left-turning accidents at this intersection would show a potential problem where motorists are having difficulty entering or turning across a heavy traffic stream where gaps are seldom encountered. Also, a higher rate of rear-end collisions would indicate that a motorist may be driving too fast or that motorist expectations are low concerning the chance that stopped vehicles will be present in the through traffic lanes.

**According to the Police Department accident reports, there have been three reported accidents with property damages in excess of \$500 in the past eighteen months (Jan.2002 - August 2003) at this 21st/Edgemoor/Malcolm intersection.** This accident experience is similar to the year 2001 when three accidents were reported including one right-angle, left-turn, and rear-end type of collisions. Of the three accidents in 2002/03, two have been right-angle collisions and one was a left-turning accident. The collision diagram is attached showing the vehicular movements involved in these accidents.

**With this accident experience, the 21st/Edgemoor(N.approach)/Malcolm intersections would be considered as having a relatively fair accident condition in comparison to similar arterial street intersections.** Although accident rates are typically low at arterial/collector streets due to the moderate volumes on these collector street approaches, two or more accidents are typically expected each year. It should be noted that the arterial street/collector street intersections within the City of Wichita with the highest accident rates in 2002 were the Westport/Maize (19 accidents), Market/25th (23 accidents), and Edwards/Maple (14 accidents). In comparison to the high accident rates at these

locations, the number of accidents at the 21st/Edgemoor/Malcolm intersection would be considered relatively low. It should be noted that the average accident rate at intersections is 8-10 accidents per 10 million entering vehicles (MEV). The accident rate at the 21st/Edgemoor/Malcolm intersection is 2 accidents per 10 MEV. Staff concludes from this information that this intersection has a relatively fair accident experience when the intersection volumes are taken into consideration.

### **21st Street, Edgemoor, and Malcolm Traffic Flow Conditions**

Staff collected traffic volume counts on the 21st/Edgemoor (N. approach)/Malcolm intersection approaches to determine if traffic volumes were causing problematic conditions. Traffic volumes are an important factor when determining the need for corrective measures at intersections. To install traffic signals, for instance, a minimum side-street volume threshold should be met in order to determine that this type of traffic control is needed at the intersection. These volumes are established due to the number of requests for traffic signals along major streets, and the need to facilitate traffic flow along these major traffic facilities.

Traffic flow conditions are quite different along 21st Street, Edgemoor, and Malcolm. The 21st Street corridor is a major arterial street and carries moderate traffic volumes in comparison to other arterial streets. According to recent traffic volume counts, the traffic volume along 21st Street is 25,600 vehicles per day (vpd). In comparison to other arterial street volumes, it is an average volume with other arterial street volumes ranging between 10,000 and 35,000 vpd. The heaviest arterial traffic flows within the community are experienced along Rock Road and Central.



## **21<sup>st</sup> Traffic Flow east of Edgemoor**

**Recent traffic counts show that traffic volumes are increasing on 21st Street at the Edgemoor/Malcolm intersection.** Traffic counts show an approximate 18% increase, or 4,000 vpd, on 21st Street since June 2000 when traffic counts were 21,600 vpd. This increase in traffic flow may be a result of 21<sup>st</sup> Street corridor improvements and new development within the general area. The recent 21st corridor improvements that have improved capacity and operations include the modifications to the I-135/21st Street interchange and the widening of 21st Street between Oliver and Hillside.

Edgemoor and Malcolm are both local streets that serve the adjacent neighborhoods along 21st Street. Current traffic volumes along Edgemoor and Malcolm are approximately 2,000 and 320 vpd, respectively. These traffic volumes are both within ranges of typical local streets. It should be noted, however, that the traffic volume along Edgemoor is within the higher range of local street volumes and may be considered a “residential collector” street. Shown below are residential collect street volumes within the City.

### **Residential Collector Street Volumes within the City**

<b>Street</b>	<b>Location</b>	<b>Volume</b>
Central Park	W. of Parkdale	1830 vpd
Central Park	W. of Stoney Pt	2285 vpd
Hyacinth	S. of 24th Street	2065 vpd
Market	S. of 15th Street	2930 vpd
Nims	Franklin	7015 vpd
Perry	N. of 13th	1930 vpd

The recent traffic counts on Edgemoor do show an increase in flow since counts were last taken in 2000. According to the current and past traffic counts, traffic volumes have increased by 300 vpd on Edgemoor in this approximate four year period. This volume increase could be a result of new development and changes in trip patterns within the area. It should be noted that no traffic volume changes were indicated on Malcolm during this four year period.



## **21st Street Traffic Speeds**

Motorists and residents do have widespread concerns about traffic speeds on local and major streets. Though most motorists do obey the speed limits along streets, it is proven that 15% of the motorists are driving faster than prudently safe under the prevailing conditions. To evaluate the traffic speeds on 21st Street, staff has performed a recent sample speed analysis at midblock locations. In this recent effort to evaluate speeds, staff obtained vehicular speeds of more than 110 motorists traveling both east and westbound during a weekday period at the Edgemoor/Malcolm intersection. It should be noted that this sample included only free-flow speeds of motorists who were not impeded by other vehicles or obstacles. According to this speed analysis, average travel speeds on 21st Street at this location were 40 miles per hour (mph) for westbound and eastbound motorists, respectively. The 85% percentile speed, or the speed that 85% of the motorists were traveling at or under, was 44 mph for the respective flows. With average speeds on 21st Street approximately 40 mph, this does show a relatively good compliance with the existing 40 mph speed limit along this section.

This recent traffic speeds are comparably similar with ones surveyed in 1990 as part of an earlier traffic study evaluation of the intersection. As shown below, there is a 2 to 3 mph difference between traffic speeds surveyed during these periods.

### **Reported 21st Street Traffic Speeds (1990-1994)**

<b>Date</b>	<b>Average Speed</b>	<b>85% Speed</b>
4/27/90	39 mph	43 mph
4/26/90	39 mph	44 mph
4/27/90	38 mph	42 mph
<b>1/05/04 (recent)</b>	<b>40 mph</b>	<b>44 mph</b>

**Traffic speeds along 21st Street at the Edgemoor/Malcolm intersection are not uncommon for arterials streets.** In fact, in comparison to speeds along other arterial streets, the average and 85% speeds on 21st Street are very similar. Shown below are recently collected speeds along arterial streets in the community where similar flow conditions are present.

## Comparative Traffic Speeds on other Major Arterial Streets

Street	Location	Average Speed	85% Speed
21st Street	Hillside-Oliver	38 mph	43 mph
Seneca (S)	Harry-Pawnee	38 mph	41 mph
21st Street	Edgemoor	40 mph	44 mph

**Staff does note that traffic speeds are marginally higher by 1 to 2 mph along this 21st Street section.** This higher speed can be partially explained by the existing street side character along 21st Street that includes lower side-street “friction”. This lower side-street friction is contributed by the setbacks of the residential homes from the street along this corridor. It is also contributed by the lower number of driveways and obstacles. With these sidestreet characteristics, motorist would feel more comfortable driving at a slightly higher speeds.

### **Sight Distance**

Staff also checked the sight distance at the intersection approaches to address concerns that motorists may have due to the existing landscaping, tree plantings, fences, and other permanent street-side fixtures. This is important, since sight distance is sometimes impacted at residential intersections by shrubbery, trees, fences, or buildings at the intersection corners that prevent motorists from observing an oncoming vehicle. In this evaluation, staff found that the visibility was good on all approaches at these intersections. It should be noted that although there is a 6’ high fence on the southwest corner of the Malcolm/21st Street intersection, it is placed far enough from 21<sup>st</sup> Street that it does not reduce the required sight distance. As seen in the picture on the next page, motorists who stop at this south approach will be beyond the location where the fence would block their view of oncoming vehicles on 21st Street. This fence is in compliance with respect to the City ordinance for intersection sight obstructions.



**Sight distance on Malcolm approach at the 21st Street intersection**

### **21st Street/Edgemoor/Malcolm Intersection Geometrics**

Staff also evaluated the intersection geometrics at the 21st Street/Edgemoor/Malcolm intersection. This geometric design is an important condition to evaluate since it impacts the traffic operations at the intersection and along the corridor.

**Staff's evaluation showed that the geometrical design of the intersection is very similar to most other major-minor arterial street intersections with respect to the lane widths, sidewalk placements, intersection approach widths, and number of traffic lanes.** The four-lane width design along 21st Street is very common for arterial streets within residential districts where turning volumes are not high in comparison to arterial corridors along commercial areas. It should be noted, however, that this lane design will change since the 21st Street corridor has been programmed to be widened to a five-lane facility in 2006. This improvement is slated since the vehicular volumes along 21st Street are reaching the design capacity of this four-lane facility. Typically, a four-lane facility reaches the upper limits of its design capacity when volumes reach ranges between 20,000 and 25,000. This capacity threshold is also dependant on the turning movements, truck traffic, lane widths, number of side-street and driveway approaches, and other factors.

**The uncommon geometric design at the 21st/Edgemoor/Malcolm street intersection includes the approximate 20' offset in the Edgemoor and Malcolm street alignments.** Although this is not severe, it does contribute to more problematic turning conditions during instances where east and westbound motorists on 21st Street are making left-turns at the same time onto Edgemoor and Malcolm. With this offset, these left-turning motorists may be within each other's logical turning path that may block one or both movements. Staff believes, however, that this potential conflict is mitigated by the relatively low vehicular movements onto the Malcolm street approach from westbound 21st Street. With this low volume, there are very few instances each day when left-turning motorists on 21st Street are turning north and south at the same time at this intersection. It should be noted that there has been no accident reported in the recent past that involves this accident type.



**Edgemoor Approach view showing offset alignment with Malcolm**

### **Other Conditions**

Like most neighborhoods, pedestrians commonly are found walking and crossing 21st Street, Edgemoor, and Malcolm Streets. Sidewalks are found exist 21st Street, but not along Malcolm or Edgemoor. This sidewalk plan is typical in many neighborhood districts where it is more important to accommodate pedestrians on the busier arterial streets for safety reasons. Although sidewalks don't exist along Edgemoor or Malcolm, pedestrians can utilize the grassy areas next to the street curb for walking. The general accommodations are good for pedestrians on 21st Street where there is sidewalk continuity and handicap designs.



**Sidewalk along south side of 21st Street west of Malcolm**

Of the other conditions, there is a good spacing of street lighting along 21st Street within the area next to Edgemoor and Malcolm. Street lights along major arterial streets are typically located at spacings of approximately 200 feet and should provide good illumination at night. However, street lights are spaced much closer along 21st Street at a distance of 150 feet due to the number of intersections along this corridor.



**Street lighting along 21<sup>st</sup> Street west of Edgemoor**

Other than the unique conditions noted in this report, there are no other ones found near the 21st Street/Edgemoor/Malcolm intersection that are not common along similarly designed arterial, collector streets, and local streets within the community.

## **21st/Edgemoor/Malcolm Improvement Alternatives**

This report section discusses the traffic improvement alternatives that were explored to address concerns about traffic conditions along 21st Street at the Edgemoor/Malcolm intersection. Included in this section is an analysis for traffic signals and lane widening along 21st to construct a continuous left-turn lane.

### **21st/Edgemoor/Malcolm Traffic Signal Alternative**

In order to recommend installing a traffic signal control at the 21st/Edgemoor/Malcolm intersection, staff relies on criteria established in the Federal Highway Administration's "Manual on Uniform Traffic Control Devices". This manual has been adopted for use by the City of Wichita and the State of Kansas and provides consistent and proven guidelines for justifying the location of all types of traffic controls along streets and highways. According to this manual, traffic volume and accident criteria (warrants) should be met in order to place a traffic signal. According to warrants, the intersection should have an accident history, indicated by 5 or more reported crashes in a 12-month period, susceptible to correction by a traffic signal installation. Such accidents include right- and left-turn collisions as well as right-angle collisions.

**Currently, the accident experience at the 21st/Edgemoor/Malcolm intersection does not meet warrants based on the past three year period.** City of Wichita Police accident records for this intersection show that there have been approximately two reported accident reported each year during this period that have involved left-turning, right-angle, and rear-end types of collisions. Consequently, this low accident rate could be explained by a higher rate of right-turning movements from Edgemoor to 21st Street and the fewer number of conflicts attributed to this movement. It is also explained by the very low volumes on Malcolm's south approach to the intersection. Due to this low volume, motorists have almost no conflicts with this opposing traffic in regard to left and through traffic movements.

**Minimum traffic volume warrants are also not met at the 21st/Edgemoor/Malcolm intersection.** Based on established traffic signal volume warrants for interrupting the major street flow, minor street approaches should carry a traffic flow of 140 vehicles per hour during the eight highest traffic periods. According to recent traffic counts, this threshold is not met on Edgemoor or Malcolm with a flow of only 60 vehicles per hour during this eight-hour period. It should also be noted that to meet the other peak hour volume warrant, there

should be a flow of 115 vehicles per hour on the minor street approach at the critical 4-5 p.m. period. This threshold is also not met on Edgemoor where a total of 64 vehicles per hour flow is experienced during this period.

**After evaluating the traffic conditions, staff does not believe that traffic signals should be installed at the 21st/Edgemoor/Malcolm intersection.** This is primarily because the existing conditions at the intersection do not meet the traffic signal warrants based on traffic volumes and accidents. Due to this situation, staff believes that the placement of traffic signals would probably detrimentally impact conditions along 21st Street. With the signalized operation on 21st Street, there would be greater delays and an increase in the number of stops for motorists on 21st Street, and probably would result in a greater number of rear-end type accidents. It may also detrimentally impact conditions on Edgemoor and Malcolm since it would probably encourage more traffic along these local/collector streets. With this likelihood, there would be a potential for higher speeds and accidents at the intersections along both streets.

Although the 21st Street/Edgemoor/Malcolm intersection does not meet traffic signal warrants, it will be monitored in future years due to the recent traffic volume increases on 21st and Edgemoor.

### **21st Street Widening Alternative**

Staff does acknowledge that left-turning movements at the 21st Street/Edgemoor/Malcolm intersection may become problematic during the peak periods. This is a condition experienced along most major arterial streets intersections where the higher traffic volumes afford fewer gaps in the traffic stream to make safe turning movements. This left-turning condition is compounded at this intersection by 21st Street's four-lane design where motorists must utilize the inside "through" lane to make these turns. Due to this condition, it is recognized that lane widening improvements to add a continuous "left-turn lane" will significantly improve conditions along 21st Street due to the moderate arterials volumes along this section. As stated earlier, current volumes are reaching the design capacity of the four-lane facility.

**This 21st Street lane-widening alternative is programmed in the current Capital Improvement Plan for construction in 2006.** This lane-widening improvement creates a center turning lane which provides a refuge area for motorists turning onto and from Edgemoor and Malcolm at the 21st Street intersection. This measure would also be effective in mitigating the traffic flow and safety problems caused on 21st Street when motorists are stopped to turn into the intersection approaches. Currently, this condition has resulted in same

accidents in the past three years involving east and westbound left-turning vehicles. According to industry studies, this improvement is expected to reduce the number of rear-end collisions by 80%, and the number of left-turning accidents by 45%.



## Summary

To address the need for improvements at the 21st Street/Edgemoor/Malcolm intersection, staff has evaluated traffic conditions and warrants for street and traffic control improvements. The conditions that were evaluated included the accident experience, traffic volumes, sight distance, intersection geometric designs, and other conditions that impact traffic safety and efficiency. According to this evaluation, there have been three reported accidents in the past eighteen months (Jan.2002 - August 2003) at this 21st/Edgemoor/Malcolm intersection. With this accident experience, the intersection would be considered as having a relatively fair accident experience in comparison to similar arterial street intersections.

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**Staff does believe that the planned 21st Street lane-widening project would significantly improve conditions at this intersection.** This 21st Street lane-widening alternative is programmed in the City's Capital Improvement Plan for construction in 2006. This lane-widening improvement creates a center turning lane which provides a refuge area for motorists turning onto and from Edgemoor and Malcolm at the 21st Street intersection. This measure would also be effective

in mitigating the traffic flow and safety problems caused on 21st Street when motorists are stopped to turn into the intersection approaches. Currently, this condition has resulted in some accidents in the past three years involving east and westbound left-turning vehicles. According to industry studies, this improvement is expected to reduce the number of rear-end collisions by 80%, and the number of left-turning accidents by 45%.